

REMARKS

Applicant is in receipt of the Office Action mailed January 21, 2010.

Claim 16 is herein amended. None of the claims are herein cancelled. Claims 1, 7, 9-10, 13, 16-21, 23-24, 27-28, 30, 42, 45 and 48-56 remain pending in the application.

The pending claims were rejected under 35 U.S.C. 103(a) as being unpatentable in view of various combinations of:

Pages 1-3 of Applicant Specification (hereinafter “AAPA”);

Gorell et al. (“Trends in Reservoir Simulation: Big Models, Scalable Models? Will You Please Make Up Your Mind”)

Netemeyer et al. (U.S. Pub. No. 2002/0169785);

Voit et al. (“Random Number Generation from Right-Skewed, Symmetric, and Left-Skewed Distributions”, Risk Analysis, Vol. 20, No. 1, 2000);

Jalali et al. (U.S. Pub. No. 2002/0177955 A1);

Begg et al. (“Improving Investment Decisions Using a Stochastic Integrated Asset Model, SPE 71414, SPE Annual Technical Conference and Exhibition, 9/2001);

Egyed (“A Scenario-Driven Approach to Traceability”, IEEE, 2001); and

Joshi et al. (Techno-Economic and Risk Evaluation of a Thermal Recovery Project, March 1996, Prepared for Department of Energy).

Applicant respectfully traverses these rejections.

Claim 1 is believed to be patentably distinguished over the cited reference at least for the following reasons.

First, claim 1 recites “the computer system repeatedly performing a set of operations including said selecting, said assembling the instantiated models, said executing [the simulation engines] and said storing”, where the simulation engines include “one or more physics-based flow simulators” and “an economic computation engine”. Thus, the claimed method requires that the “one or more physics-based flow simulators” be executed each time the “economic computation engine” is executed. As

Applicant has argued in the Office Action Response of January 4, 2010, Gorell teaches the opposite. (The Remarks of that Office Action Response are incorporated herein by reference.) It appears that the Examiner has acknowledged the validity of that argument since the present Office Action no longer relies on Gorell for disclosure of “the economic computation engine”. Instead, the present Office Action now relies on AAPA for disclosure of the “economic computation engine”.¹ In particular, the Examiner points to the specification at page 2, last two paragraphs. However, Applicant observes that the cited passage teaches nothing regarding “repeated” execution of simulation engines as claimed. Rather, it says that “a person planning a petroleum production enterprise” “may use a reservoir simulator” and “may use an economic computation engine”. It never suggests “repeated” execution of simulation engines, wherein the simulation engines include one or more “flow simulators” and “an economic computation engine”. Thus, the Examiner has misinterpreted the cited passage.

Second, claim 1 recites “assembling in a memory a set of models” and “assembling the instantiated models into a workflow”. The Examiner argues that this combination of features is disclosed by AAPA.² Applicant respectfully disagrees. While the cited passage (page 2, paragraphs 4-5) teaches that a reservoir simulator and an economic computation engine may operate on respective kinds of data, the cited passage has nothing to say regarding “models”, each of which includes one or more “variables” that are defined on corresponding “ranges”. Significantly, the Examiner has not attempted to identify anything in the cited passage that corresponds to the claimed “models”. Furthermore, Applicant observes the “instantiated models” as claimed are created by “selecting values of the variables in their respective ranges”. Thus, according to the claim, “models” and “instantiated models” are different entities; the latter resulting from a selection of values of the variables. The cited passage recognizes no distinction between “models” and “instantiated models”, and suggests no process of “selecting”. Therefore, the cited passage is not relevant to the quoted claim feature.

Third, claim 1 recites “storing the selected values of the variables and the data output from the one or more simulation engines to a memory”. The Examiner alleges

¹ See the present Office Action at page 4, fourth paragraph.

² See present Office Action at page 4, paragraphs 2-3.

that this feature is disclosed by AAPA. However, AAPA has nothing to say regarding the “selecting of values of [] variables” as claimed. Thus, the concept of “selected values” and of “storing” selected values is not present in AAPA.

Fourth, claim 1 recites, “one or more physics-based flow simulators for simulating” “surface-pipeline hydraulics”. The Examiner relies on Netemeyer paragraphs 2 and 5 to disclose this feature. However, neither of those paragraphs have anything to say regarding “surface-pipeline hydraulics”. Paragraph 2 mentions “simulating” “surface flowlines” but that is not the same thing as simulating “surface-pipeline **hydraulics**”. Furthermore, the teachings of Netemeyer have nothing to do with the teachings of Gorell; Netemeyer never suggests anything regarding Monte Carlo iteration. Thus, even if Netemeyer did disclose the simulation of surface-pipeline hydraulics, one of ordinary skill would have absolutely no motivation to look towards Netemeyer when contemplating possible modifications of the system disclosed in Gorell. The Examiner’s injection of the Netmeyer’s teachings into Gorell is artificial and contrived.

Thus, claim 1 and its dependents are patentably distinguished over the cited references at least for the reason given above.

Claims 10, 13, 17, 19, 21, 42 and 48 each recite features similar to those recited above with respect to claim 1. Thus, these claims and their dependents are believed to be patentably distinguished over the cited references based at least on reasoning similar to that given above.

Claim 13 and its dependents are additionally distinguished over the cited references based on the following reasoning.

First, claim 13 recites, “the computer system selecting a first geocellular reservoir model from a collection of high-resolution geocellular reservoir models **based on a first subset of the instantiated values**”. Regarding this feature, the Examiner simply states, “already discussed above in claim 1”. However, the Examiner’s argument with respect to claim 1 has nothing to say regarding “selecting” a geocellular reservoir model based on a

a subset of **instantiated values** of variables, as claimed. Instead the Examiner's argument merely points to page 2 paragraph 4 of Applicant's specification and states:

“In this paragraph the AAPA teaches executing a simulation engine to run a simulation based on model which is built on parameters. A simulation starts by a user's command, and a simulation model is built on parameters, which are regarded as a value chain.”

Thus, the Examiner argument makes no attempt to identify a “selection” based on “instantiated values”. The cited passage discloses no such selection.

Second, claim 13 recites, “the computer system resolving uncertain dates for events in one or more schedules using a second subset of the instantiated values in order to determine resolved event dates in the one or more schedules”. The Examiner alleges that this feature is disclosed in the Applicant's specification at page 2 last paragraph. While the cited passage teaches an economic computation engine may be supplied with a “schedule” that specifies certain “dates and costs”, the cited passage says nothing regarding “resolving uncertain dates” using “instantiated values” of variables. Indeed, the Examiner has made no attempt to specify what things in the cited passage are believed to correspond to the claimed “uncertain dates”, the claimed “instantiated values” and the claimed “resolving”.

Furthermore, the Examiner's argument regarding the claimed “resolving” relies on a misinterpretation of page 2 last paragraph. In particular, the Examiner asserts, “the AAPA on p. 2 last paragraph teaches using economic computation engine to schedule specifying dates” That assertion is incorrect. The cited paragraph teaches that “the economic computation engine may be supplied with a schedule specifying dates and costs”. It never suggests that the economic computation engine itself specifies dates and costs.

Therefore, claim 13 and its dependents are additionally distinguished over the cited references.

CONCLUSION

Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above-referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. The Commissioner is hereby authorized to charge any fees which may be required or credit any overpayment to Meyertons, Hood, Kivlin, Kowert & Goetzel P.C., Deposit Account No. 50-1505/5460-01101/JCH.

Also filed herewith are the following items:

- ☐ Request for Continued Examination
- ☐ Terminal Disclaimer
- ☐ Power of Attorney By Assignee and Revocation of Previous Powers
- ☐ Notice of Change of Address
- ☐ Other:

Respectfully submitted,

/Jeffrey C. Hood/

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